

AMERICAN FRUIT GROWER MAGAZINE



December, 1930
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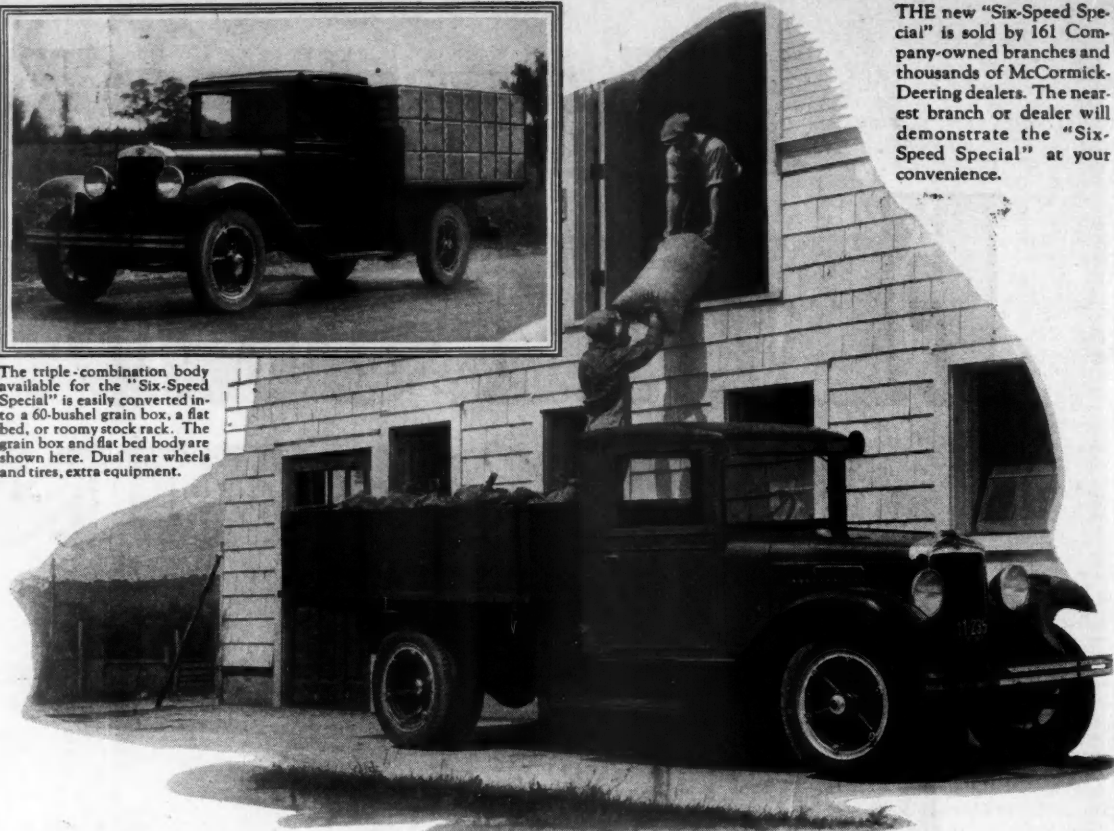
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American Fruit Grower MAGAZINE

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AMERICAN PRODUCE GROWER

VOLUME 50

NUMBER 12

Why Not Sell Apples "By the Dozen"?

ACCORDING TO A STATEMENT issued early in November by the Bureau of Agricultural Economics, the consumption of apples has practically doubled within the past ten or twelve years, largely due to better quality, better grading and packing, and better display of the fruit on sale.

This is, of course, encouraging to the producers of apples. But after lengthy investigation into some of the practices connected with retail distribution of apples, the inescapable conclusion is reached that still further increase in consumption could be secured by encouraging a larger purchase unit.

The practice of offering apples in units of three pounds has become well-nigh universal, insofar as the city markets are concerned. And regardless of the generally lower wholesale price level prevailing during the present season, the price of twenty-five cents for this unit is very generally maintained. Thus, more general consumption of this fruit, which might be promoted by a lower price to the consumer, is not secured.

Three pounds of apples means from seven to nine fruits, an average of eight. If by some means this initial purchase could be enlarged to a dozen, the effect, of course, would be to increase the unit of purchase by fifty per cent. It is not to be expected that such an expedient would have the effect of immediately increasing apple consumption in the same proportion, but the effect would be to noticeably increase the total volume of apple sales.

A new container now being tried by a few of the larger apple associations contains a dozen apples. The success of this experiment will be watched with interest, but it may not be necessary to adopt this package generally in order to put over the practice of stimulating apple sales by the dozen.

If with each box, barrel or basket of apples a neat, attractive display card is enclosed, which can be tucked into the side of the package when opened, bearing, in addition to attractive pictorial sales-stimulating material, the words—"...c per Dozen," the effect would be certain. The dealer would fill in the determined price, and most of the sales from these packages would be in lots of one dozen.

The cost of making a trial of this idea would be slight, and the apple industry would experience nothing but increased sales from its success.

"Summer Oil" Sprays

HAVE SUMMER OIL SPRAYS for codling moth control on apples been weighed in the balance and found wanting? This is the question which doubtless is being asked by many fruit growers, experiment station workers and others at this time.

Comprehensive laboratory tests, supported by field studies and practical orchard trials during about three years prior to 1930, yielded evidence of such favorable nature that the past season witnessed a very considerable commercial use of summer oil as a second and third brood codling moth spray for apples, particularly in Illinois and Missouri, and also to some extent in Indiana, Ohio, Kansas and some other central States.

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The results of such use in 1930 have not proved equally favorable in all instances with those obtained in preceding years. Summer oils which previously had proved themselves to possess the highest degree of safety of any yet developed, and which had shown only the very slightest insignificant evidence of any injurious effects on foliage or fruit, have produced some burning of foliage during the season just passed. This burning effect has varied from only slight injury to a rather noticeable burning of foliage.

Likewise, some objectionable results on the fruit in the form of spotting, surface dullness and poor coloring have been observed in some cases on certain varieties.

Second and third brood codling moth control by summer oil may be conceded to equal that obtained by arsenate of lead in practically all cases. We have heard of a few instances where the grower has believed he did not secure expected results in control, but investigation has shown that where direct comparison has been made between oil-sprayed and lead-sprayed blocks under identical conditions, the oil has shown equally effective results with lead. It must be remembered that 1930 has been a season of unusual codling moth abundance and protracted activity. Where efforts are made

to compare the results achieved this year with those obtained in previous less severe years, conclusions are very likely to prove unsound.

But what about injury? We hold no particular brief for the summer oil method of codling moth control. However, in all fairness, we must bear in mind that the summer of 1930 has been a most unusual and abnormal one from the standpoint of extreme climatic conditions. Unprecedented heat and drought prevailed over the entire Middle West and indeed over many other sections of the country. Such conditions might not recur within many years. The first year of any real commercial use of the summer oils constituted such a drastic and severe test of the new products and practice that it is to be marveled, not that some injury occurred, but that more did not occur.

It is only natural that some growers and horticulturists should judge the summer oils to have failed in this supreme test. It has been ever thus with any new insecticide or fungicide in its initial stages of development and use.

In the early years of the development of arsenate of lead as an orchard insecticide, we well recall a bulletin issued by a large and influential experiment station stating that arsenate of lead had been found to be impractical and emphasizing that the grower must continue to place reliance on Paris green for orchard use.

Many other examples might be given. For years most experiment stations, as well as growers, doubted that dormant oils would ever be practicable, and advised against their use. They are standard weapons in use today.

Thus, in all due fairness and with true vision, let us not judge too hastily, especially upon the basis of results secured in as abnormal a season as that of 1930. In order that the horticultural industry be not deprived of the very possible advantages and benefits which may be derived in the future from the further study and development of this new and promising member of the insecticide family, let us keep our minds open, encourage the further perfection of the summer oils, and test and observe their use under more nearly normal circumstances.

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This FRUIT WASHING QUESTION

ONE OF THE best known fruit growers of Virginia, as recently as July, 1930, made the following statement, "If we ever have to wash our fruit, I will quit the apple business." A conservative and practical fruit grower connected with the horticultural department of one of our large eastern colleges, in the same month, made this statement, "Fruit washing is the greatest boon to eastern fruit growers since the spread of the San Jose scale."

These two extreme views are typical of the divergence of opinion on the above subject in the East. This series of articles will attempt to sketch our present knowledge of fruit washing, especially as applied to eastern conditions, with a look into the future.

To get a true perspective of the fruit washing practice, it is necessary to go back a bit and review the conditions and circumstances that led up to the establishment and enforcement of rules looking toward the elimination of excessive arsenic residue on fruits.

Early in 1925 the health authorities of England passed legislation requiring that fruit must analyze under .01 grain of arsenic per pound of fruit, to be suitable for admission to English markets. This regulation was not viewed with any apprehension in the eastern shipping sections until the apple growers of the Pacific Northwest were called on the carpet when some of their products that had arrived at Liverpool were analyzed and were found to carry too much arsenical residue. When this was brought to the attention of our pure food and drug authorities, they apparently decided to check up on the fruit for American consumption. This checking up showed far too much arsenic on the apples and pears produced in California and the Pacific Northwest. A combination of hot, dry summers is ideal for fruit growth when combined with irrigation. It is also ideal for codling moth development, which makes heavy spraying necessary in these coast States. The authorities of the pure food and drugs enforcement department were lenient and warned these growers that they were violating the law, but penalties were not enforced until the season of 1926.

Northwest a Bedlam in 1926

EVERYONE in any way connected with the fruit growing industry will long remember the confusion, the bitterness and, to many, the losses in the Northwest in 1926 following the enforcement of the domestic tolerance of .025 and the export tolerance of .01.

The growers had been advised that their fruit exhibited entirely too much poison residue and that the old law on tolerance would be enforced. At first it seemed impossible to meet this tolerance. Many growers figured that by harvest time the government would realize the growers' predicament and would not enforce the act. Several manufacturers, concluding that the government meant business, developed machinery for wiping the fruit. But very few sales were made until the California and the Rogue River Valley of Oregon started shipping Bartlett pears. Then the fireworks began, for the government agents did enforce the tolerance and, as a result, hundreds of tons of California and Oregon Bartlett pears rotted under the trees while the growers argued with Uncle Sam.

The government authorities were finally brought to a realization that it was physically impossible to meet the tolerance on such short notice, and the inspectors were instructed to pass all fruit for domestic consumption which showed signs of some attempt having been made to remove the residue. For export shipment, however, the tolerance of .01 had to be complied with.

This agreement was reached in time to save the apples and most of the winter pears, but the Bartlett pear growers took a heavy loss. Manufacturers who were building wiping machines

The Increasing Frequency and Severity of Infestations of Codling Moth Demand Heavier and Later Applications of Poison Sprays. The Residue Problem Arising Out of This Situation Is Finding Solution in Washing.

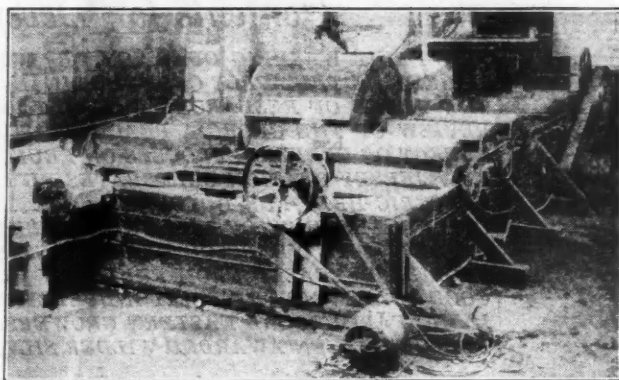
By WILLIAM ABILDGAARD

John Bean Manufacturing Company

worked day and night trying to supply the demand, and many growers fixed up home-made machines to the best of their ability, while others had to wipe their entire crop by hand. The effectiveness of these wipers varied with the conditions, amount of residue, care given the equipment, and the time between picking and the wiping operation. Much of the fruit handled through these wipers was passed satisfactorily and other lots were rejected.

Evolution of Fruit Washing Methods and Equipment

AS in other emergencies, the fruit growers turned to their



agricultural colleges and the United States Department of Agriculture for aid. Suggestions from the departments of horticulture and chemistry were put into practice. The simplest type of washer consisted of a long vat filled with one of the various solutions which gave promise of dissolving the arsenical residue. Such vats were installed in the fruit packing plants, where fresh picked fruit in the orchard crates was submerged and pushed through the solution. This was a simple process and appeared to be an easy solution of the problem. After

passing through the washing solution, the crates were stacked in piles and allowed to stand from several hours to one or two days, to permit the surplus moisture to dry off. The fruit was then put through the sorting, grading and packing operations and sold or put in storage. In other packing houses the fruit was emptied from the crates into the washing vats, propelled through by a variety of devices, in some cases submerged only an inch and in others, several inches.

Little attention was given to rinsing and drying. After a few weeks in storage, samples of washed fruit were opened and some lots were found to show considerable deterioration. In many cases there was evidence of blackening in the core area and in severe cases, this extended into the flesh. Investigation disclosed that these lots of fruit had been washed in a submerging type of washer and submerged so deeply that the pressure of the solution had forced the acid through the open calyx tubes into the core area. This situation caused many complications in the marketing of the 1926 crop, and, taken together with the largest apple crop on record, brought additional grief to the northwestern growers.

The principal lesson learned from this season's experience with washing was the necessity of avoiding the deep submergence type of cleansing. Fortunately, other types of washers had been in use the same season and the fruit from these stood up in storage satisfactorily.

Along with the acid injury from the submergence type of washer was found another injury, which proved to be caused by drops of the washing solution drying on the fruit. In tracing these lots of fruit, it was found that adequate rinse water had not been used or that no provision had been made for applying this to all surfaces of the fruit. This requirement was supplied and incorporated into the washers put into service the following season. The quantity of rinse water required varies with the strength of the acid solution and other factors to be discussed later.

The necessity for allowing the fruit to stand in the packing house after washing created serious conditions, in that space was not always available for this added requirement, and the development of satisfactory drying units in connection with the washers was found essential.

Several types of dryers have been developed that satisfactorily remove the surplus moisture.

A more discouraged and disheartened group of fruit growers cannot be imagined than the ones attending the Washington State Horticultural Society meeting the latter part of December, 1926. However, a very pleasant surprise was awaiting them in the form of a talk from Prof. Henry Hartman of the Oregon Agricultural College. Professor Hartman and his associates, after finding that wipers were not entirely effective, had experimented with a variety of chemical solvents. He had also conducted a number of tests by placing fruit both in common and cold storage to study the after effects of the wiping and washing processes. By the latter part of December, when the meeting was held, his experiments had indicated that the most practical and effective method of removing spray residue consisted of washing the fruit with a weak solution of hydrochloric acid in water. This is now the standard method for the removal of spray residue from apples and pears. During the past three seasons not less than 85 per cent of the tonnage of the fruits grown in the Pacific Northwest was successfully washed in this manner.

Washing Moves East

DURING the winter of 1926 and 1927, at least one large grower in New Jersey had fruit condemned by the government inspectors because of too much residue. He corresponded with growers (To Page 12)

MARKETING the APPLE CROP

Despite Prevailing Conditions, the Apple and Potato Crops Have Moved at Satisfactory Prices in a Market At Present Free from the Ills of "Stabilization" as Compared to the Plight of Wheat and Cotton

By JAMES S. CRUTCHFIELD

President, American Fruit Growers, Inc.

PART II

Marketing System Will Gradually Become Stabilized

THERE are probably 5000 wholesale dealers throughout the United States and in foreign countries who purchase these apples f. o. b. shipping point. The practice of shipping apples to the export trade or to the domestic markets for sale on consignment after arrival has almost ceased. In various shipping districts throughout the country there exist local co-operative

best marketing services at the lowest cost. In the Northwest there has developed a clearing house system of information among the co-operative and commercial distributors which has a tendency to stabilize the business to the benefit of all concerned.

Determining the Market Value of the Crop

IN arriving at the correct market value of the crop at the beginning of the season, it is necessary not only to consider the size of the crop and the condition of general business throughout the world, but also to know the status of apple by-products. Frequently, as during the present season in the East, the by-product factories have been a very useful factor in prices, because the crop during 1929 was comparatively short and the by-product factories therefore did not have large supplies.

On account of the drought in the East and Middle West, the apple crop has been

materially reduced, with the prospect that the by-product factories will not be over-supplied during the present season.

While the apple and potato crops during the past season occupied about the same relative position as wheat and cotton, a very free, aggressive selling program was followed from the beginning to the end of the season, with an elastic and flexible policy which kept the consumption up to the maximum every day of the season. The result was that both crops were marketed at good average prices, and what is of equal importance, the market was kept in good, healthy condition, with the trade operating at maximum efficiency under a feeling of security and

confidence. The banking and transportation interests of the country have been more impressed than ever before with the efficiency of the marketing service on perishable products, especially during periods of unsettled general business conditions when other traffic has a tendency to move by fits and starts—mostly fits. There is, of course, room for much improvement in the marketing of apples and other fruits and vegetables, but constant, steady progress is being made in that direction; in fact, the steady operation of economic law and competition is eliminating uneconomic and inefficient factors.

Outlook Favorable for Apple Growers

WE believe that the apple industry during the next 10 years will enjoy better prosperity than it has experienced during the past 10 years on the average. The cost of production is coming down; in the irrigated country, the cost of power is coming down; the price of storage is decreasing; transportation rates have a downward trend—rail, water and truck; wholesale and retail systems are being improved, with the total average cost of distribution much lower than it has been during the past 10 years, and the efforts of the business world are still concentrated on the question of improved and more economical wholesale and retail distribution.

On the other hand, the demand is on the increase. People are eating more apples and other fruits and vegetables every year, because of the better varieties, better condition of the fruit and better distribution. The general trend of the daily diet, not only in this country but in Europe is toward a larger percentage of fruits and vegetables. It is therefore evident that the apple grower during the next decade will have a run for his money.

There is considerable gloom evident throughout the business world at present, whereas one year ago the band was playing and everyone was rushing heedlessly and joyously toward destruction. It would be more appropriate if the funeral bells would ring during the highly speculative, inflated periods, and if the bands would play and the people become more cheerful after a period of discipline such as we have had during the past 12 months. Certainly the country and the world every day are getting nearer to a solid, firm foundation for general prosperity than during the recent years of "joy-riding and day-dreaming."

OUR OWN apple marketing is handled by sales offices located in each of the principal apple producing districts. Each sales office operates independently of the other, but has full advantage of daily interchange of information by wire and telephone with all other offices, and general supervision and guidance of the executive officers in Pittsburgh. In this manner, the different characteristics and conditions of each district can be given proper consideration. The system is elastic enough to meet the varying conditions and at the same time there is sufficient co-ordination and co-operation to avoid destructive, internal competition.

Our organization and system have been developed with the idea of serving the industry in every particular and department impartially, but efficiently and economically. The main idea is to satisfy the ultimate consumer by perfect service of distribution and marketing, which latter includes financing and accounting. If the consumer of the product throughout the entire consuming season is satisfied with the product and the service, and if only a reasonable charge for marketing is deducted, it is obvious that the grower will receive the full market value for his fruit.

Ultimate Consumer Must Be Satisfied

TOO often the marketing organization in the past has started out with the sole view of pleasing the producer. It should be clear that in endeavoring to extend and stabilize the markets of the world for American apples, success is possible only where the closest attention and best skill are employed in pleasing the ultimate consumer and keeping the intermediate distributor satisfied, so that they will co-operate to the fullest extent in the transaction of the business. The grower produces his fruit as an article of merchandise, while the consumer purchases apples to eat. The consumer, therefore, has a very vital interest in efficient distribution and marketing. Both producer and consumer are generally satisfied if prices are governed by the law of supply and demand, and if the correct market value is charged based on the law of supply and demand. Prices of apples and other products can never be stabilized unless both supply and demand are stabilized, which is impossible. Therefore, both grower and consumer must be satisfied to abide, so far as prices are concerned, by the law of averages over a five or 10-year period, realizing that in many instances the prices favor the consumer, and, in other instances, the producer; but, on the average, where the business is properly handled, the average should be satisfactory to both.

It is a source of real gratification to be able not only to afford a profitable and satisfactory market to the apple growers of the United States, but also a real pleasure to furnish the men, women and children of the entire world with apples every day throughout the year in as good condition as when they came from the trees, and at a price that encourages more extensive consumption.

Principal Apple Districts

THE principal apple districts of the United States are as follows:

PACIFIC COAST GROUP: Washington, Oregon, Colorado, Utah, Idaho, Montana, California and New Mexico.

MIDDLEWESTERN GROUP: Indiana, Illinois, Minnesota, Iowa, Missouri, Arkansas, Nebraska and Kansas.

SOUTHERN GROUP: West Virginia, Virginia, Maryland, Kentucky, Delaware, Tennessee, North Carolina and Georgia.

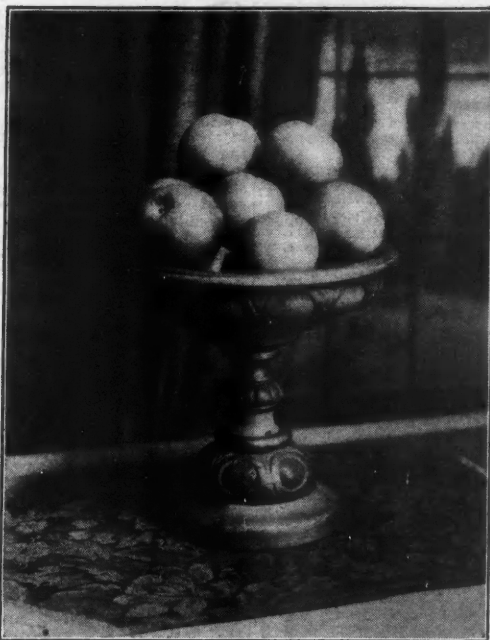
NEW ENGLAND GROUP: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut.

CENTRAL GROUP: New York, New Jersey, Pennsylvania, Ohio, Michigan and Wisconsin.

The apple harvest begins in southern Illinois and Virginia on early varieties about the middle of June and continues in the principal shipping districts until October 15 to November 1. A large percentage of the apple crop is shipped on orders booked f. o. b. shipping point to the markets of the world. An increasing quantity of apples for European and South American markets goes direct from the Pacific Coast through the Panama Canal.



The grower produces his fruit as an article of merchandise, while the consumer buys apples to eat.



organizations of growers as well as large individual growers. There are also numerous commercial distributors, and there are many smaller cash buyers who purchase and store fruit and market it throughout the season. Some of these are local shipping factors in the product districts who may operate for their own account or joint account with dealers in the markets.

All of these factors perform a legitimate and useful service, affording the grower a freedom of choice in marketing, which, for the time being, perhaps is desirable. Gradually and steadily the business will continue to gravitate toward those agencies and systems which render the



QUESTIONS and COMMENT

Conducted by T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 2c stamped envelope (air mail 5c). Address AMERICAN FRUIT GROWER MAGAZINE, 53 West Jackson Blvd., Chicago.

The Value of Research

SINCE THE DAYS of superstition, darkness, and doubt, a great advance has been made in the warfare waged against plant pests. The transition has been rapid. Progress as to time and growth has paralleled the steady advance and development of the agricultural experiment stations and the establishment of agricultural research.

It is interesting to note that the earliest authentic record of the use of sprays for the control and prevention of injury to plants by insect pests and plant diseases is given by Pliny in his Natural History written about 2000 years ago.

In discussing "Medicaments for Trees," Pliny states: "Many people kill both ants as well as moles with Amurca (an extract from olive) and preserve apples from caterpillars, as well as from rotting, by touching the top of the tree with the gall of a green lizard. To prevent animals from doing mischief by browsing upon the leaves, they should be sprinkled with cow dung each time after rain. Another method, again, is to pound lupines in oil and anoint the roots with the mixture. The fig trees are sprinkled with ashes; as also with rue, to keep away worms, and to prevent the roots from rotting."

The Hatch Act

FOR example, the Act of Congress of March 2, 1877, 45 years ago, known as the Hatch Act, really established the agricultural experiment stations by making substantial appropriations. This being the first official and worth while recognition of the basic industry, agricultural research began at once to attract favorable attention and comment. This was true on account of the great service and economic value investigations in agriculture rendered producers.

Scientific Methods

THE use of scientific methods and practices in spraying, dusting, and

fumigating of plants has come about during the past 40 to 50 years. Some of the factors which probably helped materially to stimulate progress in agricultural research in the control of pests of horticultural plants were the threatening ravages of insects. Noteworthy among these were the Colorado potato beetle, in its destructive effects upon the potato industry, and San Jose scale, in its prevention of the extension of fruit growing. With the invention of the light-weight steam and gasoline engine, producers generally were quick to accept these improvements, which not only saved labor but supplied machinery possessing power and endurance far in excess of the dreams of the most optimistic.

Value of Research in Insect Control

IT was agricultural research that gave to the grower of field crops the life history and habits of the chinch bug, making it possible to control this pest through the co-operative burning of bunch grass and other winter hibernating quarters of the insect. Likewise, agricultural research pointed the way to the successful control of the Hessian fly, often considered the most injurious insect with which the wheat grower deals.

As with the control of other pests, investigations not only brought about the adoption of measures which reduced damage to the minimum, but the researches gave new knowledge that has enabled the producers of wheat to not only control the Hessian fly but increase the yield of wheat at the same time.

Applying Research

RESEARCH and practice go hand in hand in building up the spray and dust schedules for the control of insects and diseases injurious to field crops and horticultural plants. All the workable information of the horticulturist, entomologist, and pathologist is being used

by the better growers. Practices in some sections may differ from those in others. This does not necessarily mean, however, that the growers of one region are better informed than those of another. The differences are generally due to environmental and market conditions.

The element of chance plays such an important role that under some conditions and during some years the spraying and dusting practices of a rather poorly informed grower may actually prove to be more profitable than similar practices of a better trained grower. The most capable producers cannot always be certain that their spraying and dusting operations are the last word and the best possible.

Changes Required

OUR fund of horticultural information is constantly changing. What is true today regarding insects, diseases, spraying, and dusting may not be true next year or the following year. Every year brings contributions of the agricultural experiment stations and the manufacturers of spraying and dusting machinery and chemicals. Since this is true, the more progressive and forward-looking growers recheck their methods and practices and in some instances make at least slight adjustments and changes in spray-

ing and dusting materials and schedules almost every year.

Putting Science to Work

A GREAT fund of scientific information dealing directly with spraying and dusting has been built up by the plant pathologist, entomologist, chemist, horticulturist, engineer, and grower himself. The plant pathologist and entomologist, through a knowledge of the life histories and habits of the most important diseases and insects, have pointed out and made clear the most generally accepted control measures. The chemist has endeavored to find and develop in the laboratory chemicals which will destroy biting and chewing insects, burn and suffocate those that suck plant juices, repel both types and give the grower fungicides that will prevent injury by fungous diseases and do no harm to the sprayed or dusted plants.

It has been the object of research to find or develop plants resistant to the attacks of pests and to determine the effect of applications on the plants. The engineer has designed, improved, and equipped machines for the effective use of chemicals as sprays and dusts. The growers have applied the measures and the practices unfavorable to pests and furnished the workers with timely and reliable information regarding the severity and need for control of certain pests.

Through the combined efforts, therefore, of the scientific and practical workers, dependable and valuable spraying and dusting schedules have been built up. Agricultural research has helped to solve the pest control problems through other means, such as early and late planting, the use of resistant varieties, employment and encouragement of natural parasites, the rotation of crops, the use of better culture, including applications of fertilizers in order to grow more vigorous plants and the shaping of garden, orchard, and farm practices along lines unfavorable to the development and spread of the particular pests concerned.

Fruit Growers' Questions Answered

Treating Winter-Injured Trees

I have 160 three-year-old Delicious, Starking and Golden Delicious apple trees. Several of the trees had apples on this year. Early this spring when I unwrapped them I noticed there were cracks in the bark of some of them. These cracks in some instances are four inches long, and small brown spots have developed in some of them. Would it be advisable to trim out these spots and disinfect the places? If so, what solution should be used and when should the work be done, now or in the spring? These trees have not been sprayed as yet but I expect to start spraying them in the spring.—I. J. W., Wisconsin.

stock in general or as to its compatibility with these two varieties in particular. However, I have found it rather brittle wood when compared with some other varieties. If you have had experience with this variety, I should be very grateful for your help.—F. H. K., Canada.

FROM the information obtained at this station coupled with that given from other stations, it is our opinion that the Stayman Winesap will prove to be a desirable stock for either the Winesap or Delicious.

You should remember, however, that the Stayman has the bad fault of being rather susceptible to winter injury, particularly at the base of the tree trunk and in the crotches of the larger branches.

If you have only a few Stayman trees and you can find a market for the fruit, it is our thought that it may be a questionable practice to adopt top-working to some other sort. This will be particularly true unless you are able to perform the work properly or procure someone who is competent to handle the problem of top-working. Moreover, the Stayman is generally a valuable apple on most markets, and it sells well.

Rodent Control

What would you suggest to paint on young apple tree trunks to prevent mice and rabbits from gnawing the bark?—J. B., Michigan.

MANY repellent washes, such as whitewash, diluted lime-sulphur, soap suds, coal tar, gas tar, axle grease, paint, various oils, and other substances, are often recommended as washes or paints for fruit trees to prevent injury by rabbits and field mice. During mild winters all of these materials may work very well. If snow has been on the ground, however, for a week or more and rabbits and mice need food badly, serious injury may be done to the trees where washes of the above substances have been applied.

Such substances as paint, coal tar, gas tar, axle grease, concentrated oils, and combinations of such materials may do serious injury to the tree trunks and even cause the trees to die. It is also true that a great many factors are involved in the amount or degree of injury which may be done to the trunks of fruit trees painted with these materials. To be on the safe side, therefore, the grower should not use such substances, as there are others which may be used

Merits of Staymared and Blaxstayman Varieties

Can you give me any information on the merits of Staymared and Blaxstayman over Stayman?—R. C. S., Pennsylvania.

THE STAYMARED or Blaxstayman variety of apple should in general be planted in preference to the old Stayman Winesap, because the new bud sport is more highly colored; and the fruit of the Staymared should sell for a more satisfactory price on the markets.

Buyers generally now desire varieties of apples possessing a deeper and brighter red color; in fact, red varieties generally sell better than a lighter colored red apple or even a yellow apple.

Top-working the Stayman

I have a few Stayman trees, 10 to 15 years old and very vigorous, which I wish to top-work, as the Stayman is not proving a profitable apple on our markets. I would like to work these over either to Winesap or Delicious, but I have no definite information as to the desirability of the Stayman wood as a

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with as good results without danger of harm.

If repellent or poisonous wash is desired, use whitewash, soap suds, or dormant strength lime-sulphur and add lead arsenate at the rate of about two pounds to 50 gallons. These washes may be applied with a sprayer, which will facilitate the work. Greater concentrations may be made and the repellents applied by means of an ordinary paint brush. There is little or no danger of these washes doing injury to tree trunks no matter when or how applied.

The only safe way to prevent rabbits from gnawing the bark of the trunks of young fruit trees is to wrap the base of the tree trunks from the ground to a height of about 18 to 20 inches, or the space between the ground and the lowest branches. Where the branches are less than 18 inches above the soil, the wrappers should include both trunk and branches to a height of about 18 or 20 inches. Various kinds of wrapping material may be used. Some of the most common are one-inch mesh poultry wire, galvanized window screen wire, galvanized wire netting having three or four meshes to the inch, old newspapers, gunny sacks torn in strips six to eight inches wide and cornstalks. Wood-veneer wrappers, patented wire wrappers, tarred paper and building paper may be bought and used.

A South American Inquiry

I am starting a big apple orchard, 30 miles from Montevideo, on fertile, deep soil, rather wet but well drained. For southern latitudes, which are the best two varieties of apples for culture having the following characteristics: hardy, late bloomer; annual good cropper; fruit of fine shape, good size, attractive red, high quality, resistant to codling moth, long keeper!—P. J. A., South America.

IT IS our opinion that perhaps the following two varieties will be best, considering the factors which you mention: Red Rome and Ingram.

Red Rome is a fairly late bloomer and is ranked as a good keeper. The shape, size, color, and resistance to codling moth should prove satisfactory, although the quality is not as good as some other sorts.

The Ingram is smaller than the Rome and perhaps when it is grown on old trees which have been neglected as regards to pruning and fertilization, the

fruits may be a little too small for best results. If the trees are pruned properly, however, and the vigor of the same kept up to where it should be, the fruits should be good size for market uses. The variety is one of our latest blooming sorts. The red color is attractive and the shape is satisfactory. In general, the variety is as resistant to codling moth as most sorts, even a little more so.

Bark Shedding

The bark on some 10-year-old apple trees that I have is falling off in places near the ground. Is there a remedy for this trouble?—I. J. W., Wisconsin.

IF THE bark of some of your 10-year-old trees is falling off or shedding off, this is a natural and regular process in the growth of the tree trunks. From your description I understand that this is the outer surface which is peeling or shedding off, leaving beneath new healthy bark. If this is true, this is an indication of vigor or good growth. In fact, some growers go to the trouble of removing by scraping the rough bark which is cracked and peeling off annually in the regular growth of the trees. This is done to destroy the codling moth which often winters over in the cracks and crevices of the bark within a silken cocoon in the so-called worm, or larvae, stage. In removing the bark, the worms are, of course, destroyed.

Raising Strawberry Plants for Market

Is it possible to obtain printed matter, either book, magazine or pamphlet, showing the methods used by commercial growers of strawberry plants in raising plants for the market? I should like to learn all I can of this work, and would appreciate any information you can give me.—H. V. T., New Jersey.

VALUABLE and useful information regarding the production of strawberry plants for the market may be obtained by securing circulars and bulletins from your own Agricultural Experiment Station at New Brunswick, N. J., and from other agricultural experiment stations throughout the United States.

Moreover, the book entitled, "The Strawberry," by Fraser, which may be secured from the book department of AMERICAN FRUIT GROWER MAGAZINE, should be valuable in this regard.

Review of the Georgia Peach Season

AS COMPARED with 1928, the Georgia peach industry is now on a sounder basis. Old and unprofitable orchards have been pulled up and the land devoted to other enterprises, and a number of growers were forced out of the field of production by the unprofitable season of 1928, with the result that a more favorable outlook exists for those who intend to make a specialty of growing peaches that will fit market needs.

In 1928 Georgia had close to 14,500,000 bearing trees which produced an excess of 10,000,000 bushels of peaches. This crop had a farm value of \$8,100,000 or an average of 81 cents per bushel. Weather conditions that season adversely influenced the carrying quality of fruit and the market was inadequate for absorbing 20,000 cars of peaches from Georgia.

The unequaled insect infestation of 1929 had its beginning in the unsanitary conditions of neglected orchards after the disastrous 1928 shipping season. The largest "drop" known occurred in 1929. Growers again lost heavily due to a short crop of low quality fruit.

The story of 1930 is quite different. The number of bearing trees was reduced from about 14,500,000 in 1928 to 9,713,000 for 1930. The majority of orchards received thorough cultivation, the trees were well fertilized, and the spray schedule was followed systematically. Except for a short period of low temperature in early March and a slight deficiency in rainfall during April and May, the production period was ideal. So favorable was the weather in 1930 and so thoroughly were the trees sprayed that the curculio infestation was less than one per cent for the State as compared with 12.5 per cent in 1929.

As a whole, Georgia's peach crop of 8630 cars in 1930 did not face keen competition from other southern producing areas, the total southern crop being

about 15 per cent smaller than that of 1929.

Though Georgia peaches were of higher quality than usual, prices were somewhat low because sales were hampered by the country-wide financial depression. The total crop brought into the State approximately \$9,500,000 as compared with \$3,312,000 for 1929. Growers in south and central Georgia averaged higher net returns than those located in the northeastern part of the State.

The principal factors favorably influencing the recent peach crop were:

- (1) The large reduction in the number of bearing trees through removal and abandonment since 1928.
- (2) Orchardists systematized control measures for insects and diseases and adopted approved production practices.
- (3) Producers took more than the usual amount of interest in grading and packing peaches to meet buyers demands.
- (4) Georgia peaches enjoyed comparatively light competition.
- (5) The weather during the period of production and marketing was very favorable.

It now appears that peach growing in Georgia will be profitable for several years. Growers should, however, not make large additional plantings. Unless increased uses are found for peaches, enlargement of the industry is destined to culminate disastrously as it did in 1928. The most promising among new demands for peaches is from the frozen fruit industry recently set up in the State. It seems capable of affording a profitable outlet for several hundred cars annually.

Statistics indicate at present that crops ranging from 10,000 to 12,000 cars from Georgia can be marketed at a profit.—R. M. Middleton, Marketing Specialist, Georgia Experiment Station.

The wise man listens to all advice but is careful what he takes and what he leaves depending on the dictates of his own best judgment.

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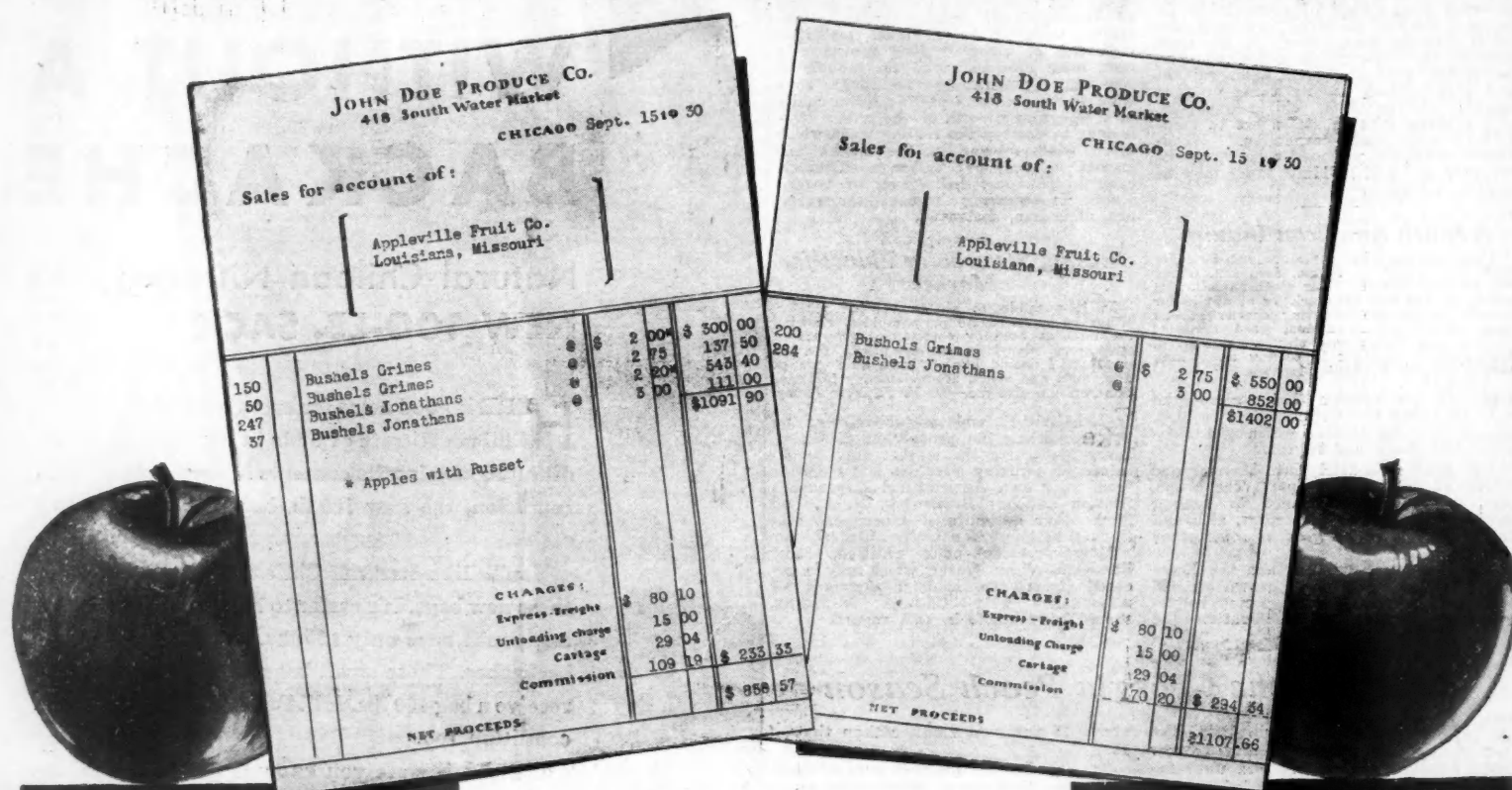
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Appleville Fruit Co. Louisiana, Missouri		Appleville Fruit Co. Louisiana, Missouri	
150	Bushels Grimes	200	Bushels Grimes
50	Bushels Grimes	284	Bushels Jonathans
247	Bushels Jonathans		
57	Bushels Jonathans		
	* Apples with Russet		
	CHARGES:		CHARGES:
	Express-Freight		Express-Freight
	Unloading charge		Unloading charge
	Cartage		Cartage
	Commission		Commission
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S-W Dry Lime Sulfur, by producing fruit of a better color and a fine waxy finish, enables you to get top price fruit.

Apple scab, pear scab, cherry leaf spot, peach leaf curl and

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And there are other reasons why leading growers insist on this new-type spray. It increases profits by reducing labor costs to a minimum. S-W Dry Lime Sulfur comes to you in a convenient powder form all ready for easy mixing with water. Thus you pay no freight on the high water content of the old-type ready mixed lime spray sulfur. There is no expensive hauling on empties because there are no empties to return.

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Prof. M. P. Zappe in the Twenty-ninth Report, Connecticut State Entomologist

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FRUIT and VEGETABLE REVIEW

By PAUL FROELICH
U. S. Bureau of Agricultural Economics

CROP REPORTS for November showed increased production for nearly all fruits and vegetables, compared with the October forecasts. Growers of early vegetables in the South evidently plan to expand acreage to a figure which seems to be almost dangerous, so far as satisfactory returns are concerned.

Total shipments were showing their customary decrease during mid-November, but can be expected to increase again after the first of the year, if not earlier. With one or two exceptions, the price level was generally moderate, partly because of business conditions. Some improvement of prices was noticed during the early part of November, but the adequate supplies available would tend to curb any sharp rise. Combined forwardings of 29 leading products about the middle of the month were 22,000 cars weekly, or 3000 more than during the same time last year.

Citrus Fruit Prominent

THE first seasonal peak of orange shipments usually comes during December, preparatory to the holiday trade. December orange movement often averages 300 acres daily, or about 10,000 cars for the month, divided almost equally between Florida and California.

The November forecast of the commercial crop of oranges and grapefruit in Florida remained unchanged at a total of 22,500,000 boxes, as against the light commercial production of 14,200,000 boxes last season and the previous five-year average of 17,460,000. The crop appears to be only a little below the high figure of 1928. Total production of Florida oranges was forecast at 14,500,000 boxes and Florida grapefruit at 12,000,000 boxes. Condition of citrus crops in California was still around 85% of normal. Texas expects 725,000 boxes of grapefruit, compared with 1,275,000 in 1929 and the previous five-year average of 403,000 boxes. Oranges in Texas may amount to 82,000 boxes and in Louisiana to 195,000 boxes. Both of these figures are far above average and Louisiana is above the 1929 total. Texas expects one-third fewer oranges than last season.

City auction prices of Florida grapefruit were averaging around \$3.20 per box during late October, with orange sales averaging \$5.15. Movement of oranges from California was extremely light during quite a long period, but had increased to 100 cars daily by the first week of November, with 150 cars each day from Florida.

Total orange output during the early part of this season was twice that of a year ago, because of the heavier 1930 movement from Florida. Grapefruit forwardings were running one-sixth greater than during the first part of the 1929 season, all of the increase being in Florida. Texas shipments were about one-third lighter than to the same time last season. Imports of Cuban grapefruit and of Porto Rican oranges have been much heavier than those of a year ago.

A recent press dispatch from Phoenix said: "Arizona growers are looking for some formula by which they can make more profit and merchandise their grapefruit and other fruits. The manager of the Arizona Citrus Growers says citrus fruits will become the chief agricultural product of Arizona, provided adequate marketing machinery can be devised. He points out that world production has made a problem which Arizona citrus raisers must study. Argentina and New Zealand are adding to their production and influencing the world market, he says. In world competition the quality fruit economically produced will hold its own, is his opinion. Arizona is setting enough trees to equal soon Florida's grapefruit production of 8,500,000 boxes."

Frozen Citrus Products

AN editorial in a Florida paper for October 18 said: "Developed from the desire to utilize all of the great production of citrus fruits in Florida, the idea of freezing the juices and shipping them all over the country in the frozen state has reached the point where a new industry appears in view. Reports coming out of Tampa a few days ago told of contracts made between a nationally-known distributor of peanuts and nut products and the Florida Citrus Exchange, by which the latter is proposing to furnish millions of boxes of Florida fruit, from which the juices will be extracted and frozen, for selling through more than 90,000 retail outlets

that have been developed in the merchandising of peanut products during the past five years."

In this connection, a New York City newspaper recently stated: "House-to-house delivery of orange juice, at the same time milk is delivered, is to be undertaken by National Dairy Products. National Juice Corporation, a subsidiary of National Dairy Products, has contracted with the Florida Citrus Exchange to handle fresh Florida orange juice. The juice will be frozen in Florida and shipped to distributing points for defrosting. Rochester, Philadelphia, and Memphis will be the first key-markets to be reached. In order to stimulate development of the product, the advertising clause of the contract between the companies allows a rebate of 10¢ a box to the distributing company. The distributing company in turn must earn this rebate by investing 22½¢ per box in advertising. This applies to the first year of the contract only."

Cranberry Season On

THE 1930 cranberry crop in five important States is estimated at 569,500 barrels. Massachusetts, with 380,000, shows a slight decrease from 1929, but New Jersey, with 144,000 barrels, has a 60% increase. Wisconsin has 40,000 barrels, or about the same as last year, while the Pacific Northwest shows a decided decrease. Eastern cranberries, packed in quarter-barrel boxes, were jobbing during early November at \$2-\$3.50.

Grape Season Near End

BY November 10, California had shipped about 61,500 cars of grapes, compared with 56,500 to the same time in 1929, and thousands of acres had not yet been harvested. Shipments were extremely heavy during October; market prices of western grapes sagged under the liberal arrivals. Movement had dropped during early November to 300 cars daily.

Wine varieties of grapes in California were expected to total 511,000 tons, according to November estimates. Raisin grapes were figured at 1,222,000 tons, and table varieties 358,000 tons. This combined total of 2,091,000 tons in California compares with 1,827,000 last year. Producing States other than California show a total of 276,655 tons this season, as against 271,417 in 1929. Aggregate grape production for 1930 was forecast in November at 2,367,655 tons, or 13% more than the crop of last season. Quality was slightly lower than in 1929 and below the 10-year average.

The eastern grape season closed with relatively high prices, touching \$65 per ton at New York shipping points, while top f.o.b. price on California juice stock was about \$40 a ton. New York shipped only 2000 cars by rail, compared with 2540 last year. Michigan forwarded 1550 cars, or 200 less than in 1929, but Pennsylvania, with 850 cars, was about equal to its last season's record. Large additional quantities of eastern grapes were hauled by truck or used locally by juice factories.

A Large Bunch of Grapes

THE largest bunch of grapes ever brought into this country arrived at New York about November 3, on the Red Star liner "Westernland" and was taken from the ship's refrigerator in a specially-iced truck to a cold-storage plant, where it was kept to await exhibition at the Newark flower show, according to the press. The cluster weighed 39 pounds, was 41 inches long and two feet in diameter, and was valued at \$234. Because of its value as a curiosity, it was insured for \$500 while it was growing in a hothouse near Brussels. The grapes were a large muscatel variety.

Few Pears Moving

ALTHOUGH pears have come to be almost a year-round fruit, because of favorable storage conditions, shipments during early November were down to a daily average of 50 cars. This, however, was still twice as many as a year ago. Fairly large quantities were still rolling from Washington and California, the two States which together produced 13,484,000 of the total 25,000,000 bushels this season.

The November estimate of pears was 25,229,000 bushels, which is slightly above the October forecast. Last year's crop was 21,563,000 bushels. Conditions

were favorable for the production of this fruit in New York and the Pacific Coast States, where the bulk of the crop is grown. Pears were far below the average in the other States. The total crop was the largest since 1916, except for the year 1926. Shipments had already exceeded 26,500 cars, in addition to vast quantities used by canneries or in other ways.

More Apples Available

THE total apple crop in November appeared to be 6% larger than was forecast in October, the estimated production being 162,016,000 bushels, compared with 142,078,000 last year and an average production of 180,262,000 bushels the previous five years. The improvement in the commercial crop amounted to about 4% over the October 1 forecast, the production now being estimated at 33,080,000 barrels, compared with 29,011,000 in 1929 and the five-year average of 32,373,000. The apple crop was far above average in the Pacific Coast States, and New York had a good crop. The decrease in production was marked in the drought-stricken States. Quality of the United States crop is reported to be better than last year but slightly below average. In the eastern and central areas, drought resulted in smaller-sized fruit than usual.

Shipments have been quite active, particularly from the West, and by early November the season's output had nearly caught up with the corresponding total of the 1929 season. Forwardings had aggregated about 63,000 cars by November 10, approximately four-sevenths of these being from western States. Producing sections prominently exceeding last year's record of shipments to date were Washington, Oregon, California, Utah, New York, Delaware, and Illinois. Imports from Canada also have been heavier than in 1929.

After apples had been harvested and were under cover, carlot movement in the United States decreased gradually to an average of about 900 cars daily by mid-November. Markets were about steady, with f.o.b. sales of most varieties in bushel baskets ranging \$1.35-\$1.50 and barrels holding close to \$4 at shipping points. Boxes of Extra Fancy fruit in the Pacific Northwest were still ranging \$1.10-\$2.10, according to variety. Quality is good and sizes generally large in the Northwest.

Approximately 1,000,000 bushels of bulk apples bought by canneries in Pennsylvania will be inspected for grade by the 10 State inspectors located at canneries this season, the Pennsylvania Bureau of Markets has announced. The bureau says that the old system of placing a flat price on the fruit, while it is still on the trees, appears to have been relegated to the past in favor of the new plan where purchases are made on the basis of Federal grades. It is believed also that placing the apple industry on a basis, where a grower receives pay for his fruit in accordance with its quality, will do much to improve the cultural methods used in Pennsylvania orchards.

November Storage Holdings

THE report of cold-storage holdings of apples on November 1 showed 1,567,000 barrels, 14,592,000 boxes and 6,404,000 bushel baskets on hand. Barrels were about one-fourth lighter than a year ago and were scarcely more than half the five-year average holdings. Boxes were much more plentiful than in 1929 and baskets slightly more than last season's figure. The total cold-storage holdings were equivalent to 8,566,000 barrels, which is 7% more than last autumn and 15% above average.

Vegetable Acreage Increased

ALL indications point to increased plantings of potatoes and nearly all truck crops in the early shipping sections of the South and West. Strawberry acreage for picking in 1931 doubtless will show a decrease, but cabbage, onions, lettuce, potatoes, and possibly other crops are expected to register material gains. Southern growers evidently are not disturbed by the low prices of northern crops and are willing to take a chance on the winter or spring market. Movement of truck crops, especially from Florida, had already become quite active. The winter crop of green peas was moving from Imperial Valley. Florida and Texas together have about twice as many fall tomatoes as in 1929, or 507,000 bushels.

More Potatoes Expected

THE potato crop is now estimated at 368,444,000 bushels. This is nearly 5% above the forecast of October and about 2% above the crop of 359,796,000 bushels harvested last year, but still

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6% below the average production during the previous five years. The improvement in prospects since last month is particularly marked from Maine to Illinois, in western Nebraska and in the irrigated section of the West. In the Dakotas and parts of Minnesota the gain from the unusually late growing-season was offset by freeze losses the middle of October. The average quality of the potato crop is the lowest since the drought of 1901, and the estimate of production includes a considerable quantity of small and unmerchantable potatoes. Per capita production for the United States is increased only slightly to about 3 bushels, which is quite moderate.

Early potato States in the South are together planning an 11% increase in acreage over that of 1930, so that any shortage of old stock may be compensated by a good crop of new potatoes next spring. Florida, however, expects to make a 10% decrease from plantings of last season.

Markets for main-crop potatoes were very weak in mid-November. Shipments had decreased to a daily average of 700 cars, but were still heavier than a year ago. Shipments to date from important States were one-tenth less than to November, 1929. Maine and Idaho were the two leading sources of supply. Idaho has an exceptionally large crop of 25,000,000 bushels and is exceeded only by Maine and New York.

Western New York f. o. b. situation was dull at \$1.55 per 100 pounds sacked, while northern Maine was slow on Green Mountains at \$1.20. North Central States reported an f.o.b. range of \$1.40-\$1.55, but western sections quoted most sales at 90c-\$1.30. The Yakima Valley of Washington was lower at \$20 per ton of combination-grade Russet Burbanks. Green Mountains from Maine or Long Island sold within a range of \$1.60-\$2.55 per 100 pounds in city markets. Round Whites brought almost equal prices. The Chicago carlot market was lower on northern Round Whites at \$1.35-\$1.60, on Nebraska and Colorado potatoes at \$1.65-\$1.80, and on Idaho Russet Burbanks at \$1.85-\$2 per 100 pounds.

Sweet-Potato Estimate Raised

SOME improvement in the sweet-potato crop during October was noted in principal States, such as Texas, Louisiana, Georgia, South Carolina and Virginia, but Delaware, Maryland and Oklahoma showed reduced production. The November 1 estimate is 72,576,000 bushels, as compared with 84,661,000 last year and the 1919-1928 average of 87,698,000 bushels. The average yield is about 85 bushels, or fully 10 bushels below the 10-year average figure.

Carlot forwardings were still lagging behind the records of 1929, and current movement during early November was down to 70 cars daily. Virginia was originating half the total. Southern States were becoming more active. Prices showed very little change from the preceding month, Virginia barrels jobbing at \$2-\$4 in consuming centers.

Cabbage Markets Weak

NOTWITHSTANDING the liberal supplies and low prices of northern Danish-type cabbage, growers in four early shipping States expect to increase their combined plantings about 20% over those of last winter and may have together 38,690 acres this season. Florida and California show considerable increases, but Louisiana a slight decrease. Southern Texas growers are planning an increase of one-third and may have 23,900 acres in early cabbage. South Carolina has 1300 acres of fall-crop cabbage, a large increase over last season.

This second-crop had started moving from South Carolina during November, and forwardings from the North and West decreased from their high mark of October to a daily average of 150 cars, chiefly New York and Wisconsin stock. F.o.b. values in western New York held around \$11-\$12 per ton bulk or \$14-\$16 sacked. The southeastern Wisconsin market was dull and weak at \$7 to \$9 per ton, even though a part of the Wisconsin crop was caught by the October freeze.

Onion Prospects

PRODUCTION and holdings of late or main-crop onions were heavy but growers of Bermuda or Creole onions in the three southern early States are planning to increase their acreage by 13% over that of last year. California plans a decrease of nearly 50%; Louisiana may hold about steady; but Texas expects a 22% increase this coming season. The three States may have a total of 22,180 acres.

AMERICAN FRUIT GROWER MAGAZINE
PAGE 11 DECEMBER, 1930



Top-dressing at blossom time means extra profits at harvest time



Better quality—bigger yields—extra profits. These are the rewards at harvest time for top-dressing two or three weeks before blossom time with plenty of nitrogen.

Whether you use mulch-grass or tillage cover-crop method of culture, Arcadian Sulphate means larger yields. Experienced growers have found that the application of increased quantities of nitrogen gives correspondingly higher yields. A group of orchardists who made demonstration tests actually increased yields with Arcadian Sulphate of Ammonia from 50% to 233% by top-dressing.

Arcadian Sulphate has a guaranteed 20.56% content of quickly available nitrogen—easily applied—packed in 100 lb. bags for convenience; 200 lb. bags for economy.

Order Arcadian Sulphate of Ammonia from your fertilizer dealer when you buy your mixed fertilizer.

The *Barrett* Company

40 Rector Street, New York, N. Y.

Atlanta, Ga. Norfolk, Va. San Francisco, Calif.
Memphis, Tenn. Cleveland, Ohio Montreal, Que., Canada

ARCADIAN SULPHATE of AMMONIA

NITROGEN IS THE GROWTH ELEMENT

As essential as sunshine to growing crops. Be sure your crops get plenty of nitrogen both in the complete fertilizer you use and as side-dressing.

Markets for northern-grown onions have been very sluggish and prices at a discouraging level. A slight improvement occurred at shipping points during early November but western New York shippers were getting only 85c-90c per 100-pound sack of best yellows, with 50-pound bags at 42c-50c. Southwestern Michigan strengthened to 75c on the larger sacks and the smaller-sized bags brought 37c-40c. A few sales were made in southeastern Colorado at \$1.10 per 100-pound sack of 3-inch minimum Valencia-type onions. Total movement each day was averaging around 135 cars, chiefly from Indiana, Michigan, and New York. The Colorado shipping season was very slow in getting under way.

Berry Acreage Reduced

PRINCIPALLY as a result of the prolonged drought, it looks now as if the total commercial area of strawberries for picking in 1931 will be reduced by 9% to 162,000 acres, the smallest since 1926. Acreage has been reduced each season from the high point of 208,840 acres in 1928, partly because of unsatisfactory prices in many States and because of unfavorable weather conditions. States having the greatest indicated curtailment for the 1931 season are Alabama, Arkansas, and Tennessee. Florida expects a 25% increase over 1930 and may pick 10,000 acres of berries. Louisiana is expected to hold around 23,500 acres. Missouri and the Eastern Shore peninsula probably will be reduced to a considerable extent.

Effect of Freezing Process on Fruits Being Studied

THE FIRST laboratory investigation to determine the exact effects of the new quick-freezing process upon fresh fruits frozen during their season for year-round consumption is being conducted by Dr. J. Cecil Rhodes, Director of the Medical Arts Laboratories, Philadelphia. Fresh, tree-ripened peaches frozen in Georgia last summer will be used for the various tests.

The process employed for the freezing of peaches, and other fresh fruits, in a manner designed to make them available for the table throughout the year, with all their original freshness, flavor and color, is essentially the same as that which has been successfully used for the quick-freezing of fresh meats. The successful freezing of the Georgia peaches by Tom Huston, of Columbus, Ga., during the past season is, however, the first time it has been applied with success to fresh fruit for home or individual consumption.

The first phase of the investigation will include tests to determine the comparative food value, solid content, fruit sugar content and flavor, of the frozen fruit and fresh peaches of the same variety purchased in produce markets. A second phase of the investigation will go into the matter of vitamin content. Rapid extension of the quick-freezing process to a wide variety of fruits, ac-

cording to Mr. Huston, forecasts a revolution in the American diet comparable to that ushered in by the invention of the refrigerator car.

It promises, he says, a further large increase in the number of fresh, vitamin-bearing foods available throughout the winter, together with a wider, year-round, and more stable market for the grower.

New Jersey Station Celebrates Fiftieth Anniversary

TO COMMEMORATE the fiftieth anniversary of the founding of the New Jersey Agricultural Experiment Station, exercises were held on the college campus at New Brunswick on October 8. Nearly 1000 persons from New Jersey and other States took part in the exercises. Addresses were given by men prominent in the State and in agricultural research. The speakers included James Neilson, president of the board of managers of the experiment station; M. Irving Demarest, Middlesex county assemblyman; Dr. J. G. Lipman, director of the station; Levi H. Morris, president of the State bankers' association; Dr. W. H. S. Demarest, president of the New Brunswick Theological Seminary; and Dr. A. F. Woods, director of scientific research, United States Department of Agriculture.

THE CURB MARKET

RATES: Per word, for Classified Advertisements in "agate" type, first line capital letters, 15 cents per word, including name and address. No advertisement accepted as less than 24 words. (Minimum cost \$3.60.) **DISPLAY ADVERTISEMENTS**, of type matter only (no illustrations, trade-marks, etc.) set wholly in our type, \$19.60 per inch, cash with order. No Display Advertisement of less than 1-2 inch will be accepted. Maximum size one-fourth page (12 1-2 inches). Orders may be sent direct, or through any recognized advertising agency.

AGENTS-SALESMEN WANTED

IF YOU WANT TO GET YOUR GROCERIES AND household supplies at wholesale, and a wonderful chance to make \$15 profit a day besides, send me your name immediately. No experience necessary. New Ford Sedan free to producers. **ALBERT MILLS**, 5729 Monmouth, Cincinnati, O.

BEEES

PACKAGE BEES WITH YOUNG ITALIAN Queens. Spring Delivery—F. O. B. 2 lbs.—\$3.25; 3 lbs.—\$3.75. Large order discount. Satisfaction guaranteed. **Overhey Apiaries**, Opelousa, La.
BEES FOR ORCHARDS: PRICE LIST FREE Crowville Apiaries, Winsboro, La.

DOGS

COONHOUNDS, FOXHOUNDS, RABBITHOUNDS, Bedoncos, Blueticks, Blacktans. Catalogue, **Kaskaskia, Incorporated**, BP22, Herrick, Illinois.
TRAINED HUNTING HOUNDS TESTED BEFORE shipped. Trial. Reliable Kennel Co., Herrick, Ill.
FOR SALE—20 CHOICE SELECT COONHOUNDS, cheap on trial. Kevik Kentucky Kennel, B212, Kevik, Ky.

FARMS AND ORCHARDS

FRUIT AND TRUCK FARMING IN FAMOUS Ozark region of Southern Missouri and Northern Arkansas. Ideal growing conditions, mild winters, early spring. Rich gravelly soils and ample rainfall. Good poultry, dairying and general farming section. Thousands of carloads fruit shipped annually under exceptional marketing conditions. Healthful climate. Good living conditions. Address **C. M. Michelson**, Colonization Department, Frisco Railroad, 561 Frisco Building, St. Louis, Mo.
FOR SALE—60 ACRE ORCHARD NEAR TOWN. 1500 choice varieties of APPLE trees in bearing. \$500 down payment and terms. Might lease. **T. W. Campbell**, Dixon, Mo.
RAISE EARLY VEGETABLES AND FRUITS FOR Northern markets on Rich Soils of West Florida and Southern Alabama. Good climate—long growing season—ample rainfall—good markets. Profit also in dairying and poultry raising. Lands reasonably priced. Address **C. B. Michelson**, Colonization Department, Frisco Railroad, 562 Frisco Building, St. Louis, Mo.

FARMS WANTED

WANTED HEAR FROM OWNER HAVING FARM for sale. Cash price, particulars. **John Black**, Chipewa Falls, Wis.
WANTED TO HEAR FROM OWNER OF LAND for sale. **O. Hawley**, Baldwin, Wis.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of Aug. 24, 1912, of American Fruit Grower Magazine, published monthly at Chicago, Ill., for October 1, 1930.

State of Illinois, County of Cook, ss.—Before me, a notary public in and for the state and county aforesaid, personally appeared **Harry W. Walker**, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Fruit Grower Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publisher—International Trade Press, Inc., 53 W. Jackson Blvd., Chicago, Ill.
Editor—Chester G. Campbell, 53 W. Jackson Blvd., Chicago, Ill.
Managing Editor—None.

Business Manager—**Harry W. Walker**, 53 W. Jackson Blvd., Chicago, Ill.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)—Int'l. Trade Press, Inc., C. A. Tupper, H. M. Sisley, **Harry W. Walker**, James E. Montgomery, Joseph E. Browne, all at 53 W. Jackson Blvd., Chicago, Ill.; Chas. W. Price, 250 Park Ave., New York; E. G. K. Meister, Standard Bank Bldg., Cleveland, Ohio; Superior Printing Ink Co., 203 W. 25th St., N. Y.; Elmer Quitsau, Chicago, Ill.; A. K. Mercer, 211-07 28th Ave., Bayside, N. Y.; Mrs. Margaret E. Sampson, Stratfield Hotel, Bridgeport, Conn.

3. That the known bondholders, mortgagees, and other security holders owning 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)—None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two

INSTRUCTION

WANTED IMMEDIATELY, MEN-WOMEN, 18-55, qualify for steady government positions; \$105-\$250 month; common education; no government experience required; vacations with pay; many needed soon. Write Instruction Bureau, 259, St. Louis, Mo., quickly.
MEN 18-35, \$158.00—\$225.00 MONTH RAILWAY Postal Clerk. Steady. Common education sufficient. Experience unnecessary. 25 coached free. Write today. Franklin Institute, Dept. T64, Rochester, N. Y.

MALE HELP

AT ONCE—SOUTH AMERICA OR UNITED STATES. Permanent positions; labor, clerical, mechanical, salesmanship; experience unnecessary. Salaries \$25-\$100 weekly, transportation furnished. Drawer 1175NG, Chicago.

MISCELLANEOUS

ADAMS NO-MO FOR RUNNING FITS, SARCOPIC Mange and Fleas in dogs. Large size \$1.00. Money back if it fails. Adams CS Supply Co., Ramsey, Illinois.
CASH FOR GOLD TEETH. HIGHEST PRICES. Information free. Southwest Gold & Silver Co., Box 68, Fort Worth, Tex.
NEWEST AND GREATEST EXTERMINATOR OF Cockroaches on the Market. \$1.25 lb. Money back if it fails. Agents wanted. **T. & T. Chemical Co.**, 555-27th St., Ogden, Utah.

NURSERY STOCK

PEACH AND APPLE TREES 5c AND UP. YELLOW and Blood Red Delicious. Grapevines 3c. Plums, pears, cherries, nuts, berries, peaches, ornamentals. FREE catalog. Tennessee Nursery Company, Box 101, Cleveland, Tenn.
WE SELL ON THE CREDIT PLAN. BEST VA- rieties. Apple, Peach Trees low as 5c. Grapevines, 3c. Shrubs 10c. Evergreens, 25c. Seeds, Bulbs, etc. Benton County Nursery, Box 501, Rogers, Arkansas.

POULTRY

CHICK PRICES CUT 6% CENTS IF ORDERED now for spring shipment. Best Egg Strain White Leghorns. Records to 320 eggs. Guaranteed to live and outlay ordinary chicks. Thousands of pullets, hens, cockerels at bargain prices. Big catalog and special price list free. **George B. Ferris**, 922 Union, Grand Rapids, Mich.

PRINTING

OUR SPECIALTY PRINTING LETTERHEADS AND Business Cards. Write for quotation. **E. T. Johnson & Brother**, 17 Federal St., Worcester, Mass.

SONG POEM WRITERS

SONG POEM WRITERS—"REAL" PROPOSITION. Hibbler, D-66, 2104 Keystone, Chicago.

paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

HARRY W. WALKER, Business Manager.
Sworn to and subscribed before me this 16th day of October, 1930.
(Seal) **A. C. BAMBERGER,** Notary Public.
(My commission expires Aug. 10, 1933.)

Electric Heat for Hotbeds

TRUCK and nursery farms in Mich- igan are using electric heat to force their plants with quite astonishing results, according to reports from Detroit.

After several months of development and experiment, a low wattage element has been designed which plugs into a convenience outlet connection and is being used by truck farms for seed germinating, propagating, cutting bench and outdoor hotbed.

During the spring season an electric element of this type in an outdoor hotbed prevented freezing of the plants when neighboring hotbeds of the non-electric variety were frosted.

Quantity production on this type of element has been undertaken because of the unusual interest being shown by farmers, nurserymen and utilities. The manufacturers state that the advantages of such units are: Even and controlled heat, which is inexpensive and not wasteful. The result of electric heat is that many plants—geraniums, for example—root in 19 days instead of 28 days required with other methods. The nurserymen report that electricity seems clean and agreeable to work with and that they are glad to be relieved of the bother of trying to keep seed germinator, propagating bench and hotbed temperatures within close limits. This is done automatically with electricity and without danger of fire.

Coming Meetings of Fruit Growers

CONNECTICUT Pomological Society fortieth annual meeting and fruit exhibit will be held at Hartford, December 17 and 18.—**H. C. Miles**, Secretary, Milford.

DELAWARE. Peninsula Horticultural Society meetings will be held at Bridgeville, Del., December 10 to 12.—**J. F. Adams**, Secretary, Newark, Del.

ILLINOIS State Horticultural Society seventy-fifth annual meeting will be held at Urbana, December 10 to 12.—**H. W. Day**, Secretary, Centralia.

Northern Illinois Horticultural Society meeting will be held at Stockton, December 3 and 4.—**R. A. Green**, President, Ottawa.

INDIANA Horticultural Society meetings will be held at Purdue University, Lafayette, January 14 to 16, 1931.—**K. I. Fawcett**, Secretary, Lafayette.

KANSAS State Horticultural Society annual meeting will be held at Topeka, December 9 and 10, adjourning to meet in Kansas City with the Missouri Valley Horticultural Conference on December 11 and 12.—**W. R. Martin**, Secretary, Capitol Building, Topeka.

MARYLAND State Horticultural Society meeting will be held at the Lord Baltimore Hotel, Baltimore, January 6 and 7, 1931.—**A. F. Vierheller**, Assistant Secretary-Treasurer, College Park.

MASSACHUSETTS Fruit Growers' Association meeting will be held at Worcester, January 7 to 9, 1931.—**William R. Cole**, Secretary, Amherst.

MICHIGAN State Horticultural Society winter meeting will be held in the Waters-Klingman Building, Grand Rapids, December 3 to 5. Commercial exhibits of machinery, nursery products, packages and spray materials and an apple show will be held in connection with meeting.—**H. D. Hootman**, Secretary, East Lansing.

MISSOURI Valley Horticultural Conference will be held at Kansas City, Mo., in the Shrine Temple, December 11 and 12. It will be participated in by fruit growers from Missouri, Kansas, Arkansas, Nebraska, Iowa, Colorado and other States. Commercial exhibits of spray machinery, spray material, etc., will make up an important part of the conference.—**R. J. Barnett**, Chairman, Program Committee, Manhattan, Kans.

MONTANA State Horticultural Society annual meeting will be held at Stevensville during January.—**W. E. Pollinger**, Secretary, Corvallis.

NEW JERSEY State Horticultural Society meeting and exhibit will be held at Haddon Hall, Atlantic City, December 3 to 5.—**Arthur J. Farley**, Secretary, New Brunswick.

NEW YORK State Horticultural Society seventy-sixth annual meeting will be held at Rochester, January 14 to 16, 1931. The Eastern meeting of the society will be held at Poughkeepsie, January 28 to 30, 1931.—**Roy P. McPherson**, Secretary, Le Roy.

OHIO State Horticultural Society annual meeting will be held at Columbus, February 2 to 4, 1931.—**F. H. Beach**, Secretary, Columbus.

OREGON. Western Nut Growers' Association meeting will be held at Corvallis, December 3 and 4.—**C. E. Schuster**, Secretary, Corvallis.

PENINSULA Horticultural Society meetings will be held at Bridgeville, Del., December 10 to 12.—**J. F. Adams**, Secretary, Newark, Del.

PENNSYLVANIA State Horticultural Association meeting will be held in connection with the State Farm Products Show, Harrisburg, January 20 to 22, 1931.—**R. H. Sudds**, Secretary, State College.

RHODE ISLAND Fruit Growers' Association meeting will be held January 9, 1931. Meeting place to be determined.—**T. H. Matson**, Secretary, Cranston.

TENNESSEE State Horticultural Society meeting will be held at Nashville, January 13 and 14, 1931.—**G. M. Bentley**, Secretary, Knoxville.

VIRGINIA State Horticultural Society thirty-fifth annual meeting will be held at Monticello Hotel, Charlottesville, December 2 to 4.—**W. S. Campbell**, Secretary, Staunton.

WASHINGTON State Horticultural Society annual meeting will be held at Wenatchee, December 8 to 10.—**J. T. Bregger**, Secretary, Pullman.

WEST VIRGINIA Horticultural Society thirty-eighth annual meeting will be held at Martinsburg, February 12 and 13, 1931.—**Carroll R. Miller**, Secretary, Martinsburg.

The Money Changers

Cohen and his family sat down to dinner on Sunday. To his three boys Cohen said: "Now, children, which of you would want it a nickel instead of meat for dinner?"

Each of the three decided in favor of the cash settlement, so Mrs. Cohen put the meat away. Then she brought in a pie and put it on the table.

"Now, my children," inquired Cohen, "how many of you want a nickel's worth of pie?"

AMERICAN FRUIT GROWER MAGAZINE DECEMBER, 1930 **PAGE 12**

HAYES FRUIT-FOG

Kills disease spores and insect pests instantly. Covers fast; cuts labor; saves solution. There is a "HAYES" power sprayer for EVERY spraying need from smallest garden bucket type to immense "central station" units—in every one, greatest capacity, highest pressure utmost economy, longest life per dollar invested—plus 50 years successful sprayer building experience. Before you buy any power sprayer it will pay you to get HAYES big catalog. Address

"SUCCESSFUL SPRAYING" Tell us what equipment you need. We will mail you valuable book: 128 pages, 50 pictures.

HAYES PUMP & PLANTER DIV. **FARM TOOLS** Inc. Dept. 57 Mansfield, Ohio

Index to Advertisements

The concerns whose advertisements appear listed below are equipped to give prompt and satisfactory service to the American fruit grower. Most of them issue literature that is freely at the disposal of our subscribers. It is to the advantage of all that when writing to an advertiser you use the address exactly as it appears in the advertisement, and that you state in your letter: "I read Your Advertisement in AMERICAN FRUIT GROWER MAGAZINE."

AUTO TRUCKS	
International Harvester Co.	Second Cover
DRY LIME-SULPHUR	
Sherwin-Williams Co.	8-9
FERTILIZERS	
The Barrett Co.	11
Carus Chemical Co.	6
Chilean Nitrate of Soda Ed. Bur.	7
HOTELS	
Chalfonte-Haddon Hall	10
Hotel Pennsylvania	10
INSECTICIDES	
Sherwin-Williams Co.	8-9
Sun Oil Co.	Third Cover
NURSERIES	
Tennessee Nursery Co.	10
ORCHARD LANDS	
The Milwaukee Road	10
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SPRAYERS	
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YOUR OPPORTUNITY

To view many models!

"FRIEND"

SPRAYERS and DUSTERS

will be shown at many Fruit Shows this season. It will be your opportunity to see these models and learn the advantages of "FRIEND" EQUIPMENT.

Sprayers—Dusters—Materials

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110 E. Avenue

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Florida Released From Fruit Fly Quarantine

THE FEDERAL quarantine on Florida products, on account of the Mediterranean fruit fly, was lifted on November 15, following conferences of the Secretary of Agriculture with Florida officials. This action removes all remaining restrictions on the interstate movement of host fruits and vegetables from the regulated area of Florida.

With the lifting of the Federal quarantine, grove owners are no longer required to pick up and dispose of "drops," culls and windfalls. There will be no further issuance of property certificates, and the present regulations as to packing house sanitation, shipping permits and quarantine line inspection also have been discontinued.

Intensive field inspection by the Federal forces will be continued indefinitely in respect both to fruit in the groves and in packing houses. This is a precaution against the spread of any infestation which may develop in the future. Should an inspector discover the fruit fly, he will report the infestation to the State authorities, who will institute effective eradication work immediately.

The official status of Florida in respect to the Mediterranean fruit fly, after the withdrawal of the Federal quarantine, will be exactly the same as it was before the discovery of the first infestation in April, 1929.

The decision of the Secretary and his advisers to free Florida from the fruit fly quarantine was reached only after receiving reports from field inspectors as to the results of an intensive effort to secure compliance with the present regulations in regard to grove cleanup. A gratifyingly satisfactory response was reported from every section of the citrus producing area.

Other factors helped create conditions which, in the opinion of Federal authorities, warranted them in complying with the State plant board's request for removal of the quarantine. These were the bait spray applications made during the summer and the voluntary grove cleanup at the end of the last shipping season.

Every part of the citrus belt has had repeated intensive inspections since field work was resumed in July. For most of the intervening period nearly 700 inspectors were employed. Between August 1 and November 1, approximately 600,000 specimens were submitted for examina-

tion by the identification division. No specimen was identified as being a Mediterranean fruit fly. The field inspection covered both commercial and noncommercial properties and also large areas of wild hosts.

The Federal government expended approximately \$6,355,000 in the effort to completely exterminate the Mediterranean fruit fly from the State. In this endeavor, the Department of Agriculture had the co-operation of the citizens and of the officials of Florida, particularly of the State plant board. Conditions improved steadily over a period of nearly a year and a half, and the quarantine regulations were modified repeatedly.

In 1929 one thousand properties in Florida were found to be infested by the fruit fly. Most of the infestations were discovered during the spring and early summer. At present there is no known infestation in the entire State. None has been found in a commercial grove since November 16, 1929, and only two very minor infestations of any kind have been located since that date.

Federal officials feel that under present conditions Florida products do not offer a menace to any other section of the country. In compliance with the cleanup requirements of the Federal regulations, there has been an almost complete removal and disposal of dropped fruit throughout the citrus growing areas of the State. Shipping firms and packing houses have also conformed, practically without exception, to the provisions covering issue of permits and similar matters.

In the judgment of the department, the importance to Florida of affording free movement for the crops of the State is sufficient to justify the maintenance by State authorities of the apparently satisfactory conditions which now obtain. For a time, however, Federal inspectors will be retained in the State for the purpose of attempting to discover any infestations which may remain. In the event any are found by the inspectors of the Plant Quarantine and Control Administration, acting under the authority of the State, the infestations will be called to the attention of the Florida officials. In lieu of the re-establishment of the Federal quarantine, it is expected that Florida officials will take such steps as may be necessary for eradication.

This Fruit Washing Question

(From Page Four)

in the Northwest and installed equipment for washing a large portion of his crop. One important fruit section in New Jersey that year experienced an unusually high codling moth infestation, sufficient to require heavy and late-season spraying for effective control. These conditions made the washing of this fruit a necessity. After observing this first washer and its product of cleaned fruit, a number of the New Jersey growers installed washing equipment, and now the practice is fairly common, especially in southern New Jersey.

In the Middle West, an abnormal infestation of codling moth in the Ozark country in 1928 required diligent application of poison spray, and the resultant heavy residue brought about the introduction of washing equipment in that section. Later development of codling moth and heavy second broods is a not infrequent occurrence in this territory, and compels the application of thorough and sometimes late-season applications of arsenic, which must be removed if this fruit is to pass the tolerance test.

Government Inspectors Busy in Eastern Markets

BY the winter of 1929, the government inspectors, whose duty it is to check up on the conformity to standards of such foods as are affected by the Federal statutes, were busy in the large eastern markets. In early winter they found some apples grown and packed in Michigan to be carrying an illegal surplus of poison residue. As the responsi-

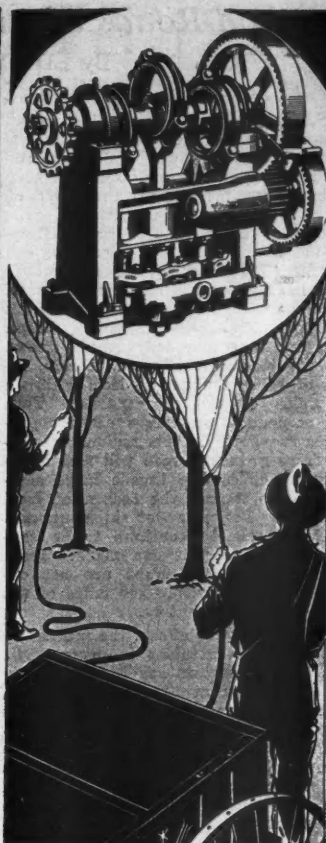
bility for this condition rests with the packer whose name is on the package, the co-operative fruit packing association was notified of the condition. Several carloads of fruit were involved, and equipment was therefore installed at the point where the condemned fruit was located, and the fruit was unpacked, washed, and repacked and sold. The washing equipment was then removed to the Michigan packing house and several additional cars still in storage there were put through the same process. The experience of this large co-operative packing agency, as related by its manager in the AMERICAN FRUIT GROWER MAGAZINE last June, seems to have been the signal for careful consideration of the spray residue problem in all sections of the East for the 1930 season.

The experiences of the 1930 season in the various eastern fruit growing sections will be related in the next article.

Seventy-Five Years of Experimenting

FOR 75 years, agricultural experiments have been an important part of the service of the Pennsylvania State College, according to Dr. S. W. Fletcher, director of research for the agricultural experiment station. Experimental agriculture was included in the original plan for the Farmers' High School, the charter for which was granted in 1855. The seventy-fifth anniversary of this event was celebrated on October 23, 24 and 25.

Colored Laborer—Boss, suh, will you please, suh, advance me 25 cents on mah time. Our deacon am gwine away, and we wants to give him a little momentum.



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Heavy wide eccentrics mounted on an over-size straight shaft end crankshaft troubles. BEAN Porcelain-lined cylinders defy wear. Heavy guides hold plungers true and save cylinder walls. Timken Adjustable Heavy-Duty Roller Bearings carry these tremendous bearing loads and insure perfect alignment, kill friction, save power and fuel, and add years of life to the pump. From end to end, the BEAN is built for long, hard, low-cost service.

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SPRAYING, DUSTING AND FUMIGATING OF PLANTS

By A. Freeman Mason. An invaluable handbook and reference for fruit growers, vegetable gardeners, nurserymen, and home gardeners. Tells what pests to expect and how to identify and control them; how to know the right spray materials and how to compare them for ingredients and price; what to look for in spraying and dusting machinery; how to remove spray residue; how to mix sprays and dusts, fumigate, sterilize soil, treat seed, and meet every other pest control problem. Cloth, 370 Pages, Ill., \$5.00

INJURIOUS INSECTS

By W. C. O'Kane. This is a complete handbook of pests preying on field crops, vegetables, fruits, domestic animals, stored products, and the household. By showing the physical structure of the insects, it indicates how their attacks may best be controlled. The preparation of insecticides, repellents, and fumigants is described in full. Six hundred illustrations show the stage of development at which the greatest damage is done, or show evidence of typical work. Cloth, 432 Pages, Ill., \$3.25

FARM STRUCTURES

By K. J. T. Ekblaw. Practical farm buildings which have been built and tested on farms are described in this book, with complete plans and specifications for their construction. Valuable advice on the choice, building material and construction methods is given. Special chapters discuss ventilation, lighting, heating, water supply, plumbing and sewage disposal. Cloth, 353 Pages, Ill., \$2.50

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American Fruit Grower Magazine

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WIN \$3,700.00!

Twenty-eight people, from a boy of 15 to elderly men and women, recently solved our puzzles and won a place in our Good Will Fund Prize Distribution. They won a total of \$34,210.00. We have deposited over \$7,900.00 more in a large Chicago bank to pay dozens of new prizes to people who answer our latest ads. It's your big opportunity! Here's the latest puzzle.

FIND THE TWINS

Below are 12 pictures of Clara Bow, the great Paramount Movie Star. Look at these pictures carefully. At first they all look alike—but that's the "catch"—so study them closely—do not make a mistake. Follow the clues.



Clues: Somewhere among these pictures are two, and only two, exactly alike—identical in hairdress, collars, and cuffs. They are the twin pictures of Clara Bow. If you are lucky enough to find them, by all means rush the numbers of the twins to me for submission to puzzle judges.

Additional \$850.00 for Promptness

If your answer is correct you will be eligible to win a brand new 30 h. p. Waco airplane (and complete flying instruction) or \$2250.00 cash—with \$850.00 extra for promptness, making the total \$3,700.00 all cash. Many other prizes paid at same time. Duplicate prizes awarded in case of ties. Cash reward for all taking active part. No prize less than \$10.00. No more puzzles for you to solve. No obligation. Perhaps YOU may be the winner of the highest prize! Send no money, but hurry!

M. J. MATHER, Advertising Manager, Room 42, 54 W. Illinois St., Chicago, Ill.

December Patterns

STRIKINGLY Smart (No. 2678). It is the slenderizing wrap-over type that is easy to slip into and quick and fascinating to make. Designed for sizes 16, 18 years, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 36 requires 4 1/4 yards of 39-inch material with 1/2 yard of 39-inch contrasting.



ATTRACTIVE Model (No. 2548). Here's a charming wearable frock of crepe woolen in dark green ground. Designed for sizes 12, 14, 16, 18 and 20 years. Size 16 requires 3 1/4 yards of 39-inch material with 1 1/4 yards of 3-inch plaiting.

CHARMING and New (No. 2669). It's a one-piece dress in disguise. To give the smart, abruptly flaring hem, the couturier has slit the skirt and inserted



circular godets. Designed for sizes 14, 16, 18, 20 years, 36, 38, 40 and 42 inches bust measure. Size 36 requires 3 3/4 yards of 39-inch material with 1/2 yard of 27-inch contrasting.

GRACEFUL Model (No. 2706). The softly falling jabot collar has a marvelous slimming effect on the bodice. It offers opportunity for contrast. Designed for sizes 36, 38, 40, 42, 44, 46 and 48 inches bust measure. Size 36 requires 3 3/4 yards of 39-inch material with 1/2 yard of 14-inch all-over lace and 1/2 yard of 39-inch light contrasting.

Patterns may be secured by mail, postage prepaid, at 15 cents each from AMERICAN FRUIT GROWER MAGAZINE PATTERN SERVICE, 261 Fifth Avenue, New York City. Be sure to state size required. Enclose 10 cents additional for copy of Fall and Winter Fashion Magazine (15 cents where no pattern is ordered).

Good Roads and the Fruit Industry

By EDWY B. REID

JUST as good roads and motor trucks have extended the areas from which milk is shipped to towns and cities, the same agencies—good roads and trucks—are changing rather rapidly the sources of supply of fruits and vegetables, particularly of cities in the East. Commenting upon this fact, Secretary of Agriculture, Arthur Hyde, said that: "Road improvement is making nearly all of the farm land in the eastern States potentially available for truck crops. Fruits and vegetables may now be grown upon the land best adapted thereto, instead of being confined to land within a few miles of the city market. Thus more economical and more efficient production is insured in this region, and distant truck-growing areas will find it increasingly difficult to invade large eastern markets during the season of local production. Large car-lot shipments will therefore probably continue to be confined to regions that can market fresh products when such crops are not obtainable within possibly 200 miles of the larger consuming centers."

"Motor transport affects the marketing of fruits and vegetables in other ways. Some truck operators are itinerant merchants who buy at the farm, for cash, products that formerly went to market for sale on commission. These distributors supply small stores, and sometimes homes, with fresh fruits and vegetables from nearby producing districts or from large distributing centers according to the season."

The authority on good roads, Frank Page, chairman of the North Carolina Highway Commission, says that, "Although the wonderful highways developed by my State will be beneficial to the farmers producing the two major crops, cotton and tobacco, they will be of more importance in the handling of the perishable truck, fruits and berries." In this State, which is 600 miles from east to west, there is a wide diversity of agricultural products, and specialization in some parts of the State makes it necessary to distribute the products rather generally. It is not uncommon to see the famous Sand-Hill peaches which had been loaded on trucks in the southern part of the State being sold many miles distant in the North. In the fall, apples from the west or late potato and cabbage crops find a ready market among the thousands employed in the industrial plants throughout Piedmont, N. C. In the eastern part of the State, several hundred carloads of strawberries are moved by truck. Some of them go as far north as New York City, reaching the city in good condition and even ahead of the refrigerator-car service.

THESE are some of the reasons the American Farm Bureau Federation has interested itself in the extension of farm-to-market roads. It will be recalled that the bureau led in the thought which finally culminated in the passage of the Federal Highway Act. This act provides for Federal-aid on a 50-50 State and Federal basis for a system of highways leading and connecting the county seats and principal cities within the States. The Federal-aid system is confined to seven per cent of the roads of the State which have been chosen by the State highway officials and approved by the Federal Bureau of Roads. Thus, the Federal-aid system coincides with the State highway system, but it is not as extensive.

The farmers as represented by the American Farm Bureau Federation are still advocates of the Federal-aid system and of the State highway system; but, what they want now, is more funds and more attention given to the roads within counties, after which the inter-county roads will be considered. They feel that the farmers are the greatest users of the roads; that their market begins at the front gate of the farmstead; and that, if the funds expended on roads are spent in a businesslike way and a system of development within a county is worked out properly, the farmers and taxpayers will not have to pay any more for good roads within a county than they now pay for poor roads. In fact, they quote many

figures and recite many facts which seem to prove their case. For instance, they point to figures developed by research men of the Iowa State Agricultural College, showing that depreciation and wear on automobiles and trucks, including tires, gasoline and oil, are about two cents a mile more when they travel over a poor road than when they speed over a good one. This one fact would go a long way to convince the average person that we are paying for good roads whether we have them or not.

Of course, the matter of the bonded indebtedness of the county is of prime importance, also the magnitude of the industry, the wealth of the county and several other factors. It is this and other questions which more than 50 committees of county farm bureaus are studying under the guidance of the State and American Farm Bureau Federations. They are making surveys to find out just how feasible it is to enter into a road-building program and just where the roads should be improved first; what roads should follow in succession; whether the funds should be raised from a bond issue or from other sources; and just what the system of development should be in these counties for the next 10 years or so.

This is getting at the problem in a systematic and businesslike manner and should pay as big dividends as it has to some of the States which stepped out some years ago with a bond issue providing for roads that have been the envy

of adjoining States and the goal of many others.

EVERYONE has heard of the wonderful highways of North Carolina. This State has, since colonial times, been conservative. Yet it has invested in roads in the last seven or eight years 50 per cent more money than had been invested by all of the States in the union, for rural highways, in the first century and a quarter of the nation's existence. These highways will pay for themselves, according to the statement of the chairman of the State Highway Commission, through a tax on the vehicles traveling over them, which amounts to \$12.50 per year or more depending on the horsepower of the automobile, and a charge of four cents per gallon for motor fuel. This, of course, is not a new system or method of raising money. But what should be pointed out is that North Carolina is doing the task systematically and expects to retire completely her investment of \$115,000,000 or more by 1952. In addition to being able to do this, she provides a fund for maintenance of highways.

North Carolina has built roads which should stand up under the volume of traffic for which they are intended. Maintenance and repairs is one of the subjects to which the farm bureau committees will give a good deal of attention. That this is necessary is proved by the statement of the New Hampshire State Highway Department that "out of every dollar spent on our highways about 63 cents go for maintenance. This is a very high annual rental for the use of our roads. Immediate replacements are needed to cut down this high maintenance percentage."

Idaho Farmers Aid Eastern Growers

By JAMES SILVER

U. S. Bureau of Biological Survey

TEN YEARS AGO, a group of Idaho farmers got together with W. E. Crouch, then district leader of rodent control of the United States Department of Agriculture, and established a small fund with which to combat ground squirrels, pocket gophers, field mice, and other rodent pests that were destroying their crops. The plan was to use this fund for the purchase of poisoned-bait materials in bulk, to have the rodent specialists mix it, and then all to get together in destroying the rodents over wide areas. The plan was a success, and the project grew and expanded.

Other communities took up the work and a central poison-mixing plant was established. Soon farmers from adjoining States were clamoring for some of the effective bait prepared there and in a few years the demand had grown from a few bushels to hundreds of tons. Modern machinery was installed, and the capacity of the plant increased until it is now capable of taking care of the entire country's needs for poisoned-grain bait. From the start all the poisoned grain has been prepared for co-operating farmers by rodent specialists at cost of materials only. They are glad to supply farmers anywhere, for the greater output has made possible more advantageous buying and less overhead per pound. The poisoned grain can thus be prepared better and cheaper than by individual farmers, who are only too glad to be relieved of the trouble of preparing it.

A year ago Federal rodent specialists in the eastern States offered to arrange to supply this bait to co-operating orchardists whose trees had been seriously menaced by field mice. As a result, more than 50,000 pounds of the bait were shipped East and distributed around approximately 1,500,000 trees. A check was made on the bait in a large number of instances and, although 100 per cent success was not obtained, the results were very gratifying and losses where bait was used were small. On the other hand, many orchards where bait was not used were seriously damaged. One well-known New York orchardist reported that he had purchased some of the bait but that the press of other work caused him to neglect to put it out. This spring he spent \$700 in bridge grafting nearly 1000 fine apple trees.

The principal objection to the bait-distributing plan last year was the length of time required for delivery from a western shipping point. This year arrangements have been made for distribution through a number of farmers' co-operative organizations, so that the bait is promptly available at all times. The formula also has been altered somewhat to conform more nearly to eastern conditions, and the strength of the mixture has been increased to render the bait effective against house rats and mice as well as against field mice.

When the co-operative mixing of poisoned bait was begun by the little group of farmers out in Idaho, and W. E. Crouch, who is now in Washington, D. C., serving as assistant in charge of the Division of Predatory Animal and Rodent Control of the Bureau of Biological Survey, these men little suspected that their action would be the means of saving thousands of fruit trees from the Mississippi River to Maine and the Carolinas; but today it is working out just that way, to the immense profit of the fruit industry.

Doctor Hansen Awarded Wilder Silver Medal

DR. N. E. HANSEN, horticulturist at South Dakota State College, recently received the Marshall Pinckney Wilder silver medal conferred by the American Pomological Society. The award was made in 1929 but Dr. Hansen did not make this known until he received the medal late in October, 1930. The inscription on the solid silver medal reads, "N. E. Hansen, Explorer and Breeder of Hardy Fruits and Flowers."

With the receipt of this award, Dr. Hansen now holds two of the highest honors in the horticultural world. The Massachusetts Horticultural Society in 1917 conferred upon him the George Robert White gold medal for eminent service to horticulture.

Dr. Hansen's efforts in breeding and selecting fruits and flowers for the Northwest are known throughout the world.

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